SONY®

Multiscan® Color Computer Display

CPD-1304S

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Owner's Record

The model and serial numbers are located at the rear of the unit. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your dealer regarding this product.

Model No. CPD-1304S   Serial No._____

Multiscan®

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

Dangerously high voltage is present inside the unit. Do not open the cabinet. Refer servicing to qualified personnel only.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

Trademark, registered or otherwise, used in this manual are:
IBM, IBM PS/2, VGA — International Business Machines Corporation.

The CPD-1304S is a high resolution computer display designed for use with microcomputers, or computers having analog RGB output.

Features

- Super Fine Pitch Trinitron computer display with an anti-glare dark screen.
- RGB terminal which allows equipment with analog RGB output to be connected.
- Compatible with the PS/2 microcomputers using VGA.
- Multiscan capacity which makes it compatible with a variety of computer graphics standards.

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Precautions

On safety

- Operate the unit only at 100 to 120V AC., 50–60 Hz.
- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for several days.
- To disconnect the AC power cord, pull it out by the plug. Never pull the cord itself.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in places subject to direct sunlight, excessive dust, mechanical vibration or shock.

On cleaning

To keep the unit looking brand-new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents such as thinner or benzine, or abrasive cleansers since these will damage the cabinet. As a safety precaution, unplug the unit before cleaning it.
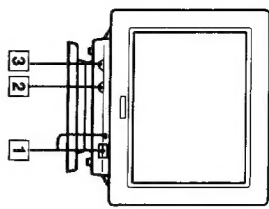
On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.
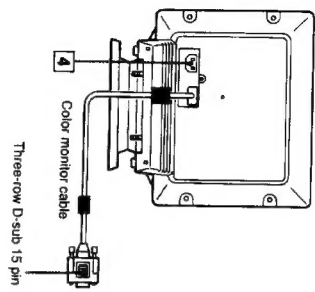
If you have any questions about this unit, contact your authorized Sony dealer.

Location and Function of Controls

Front

Rear

Three-row D-sub 15 pin

Color monitor cable

1 **POWER switch and indicator**
To turn on the power of the unit, press this switch. The indicator will light up. To turn off the unit, press it again.

2 **CONTRAST control (①)**
Turn clockwise to increase contrast, or counterclockwise to decrease contrast.

3 **BRIGHTNESS control (○)**
Turn clockwise for a brighter display, or turn counterclockwise for a darker display.

4 **AC IN connector**
Connect to an AC outlet with the supplied AC power cord.

To obtain the same horizontal and vertical sizes of 48 kHz or 57 kHz frequency with those of VGA mode
Adjust the H SIZE and V SIZE while receiving 48 kHz or 57 kHz to the same sizes with that of VGA mode, and set the AUTO SIZE switch to LOCK if it is set to ADJ.
When the display receives the 48 kHz or 57 kHz frequency the next time, the horizontal and vertical sizes become the same as those of VGA mode.

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5 **AUTO SIZE switch**
Depending on the microcomputer connected to the display, set this switch to the appropriate position.
LOCK: For the IBM PS/2 microcomputer using the VGA mode.
When this switch is set to LOCK, the timing is automatically adjusted to the VGA mode, and the H SIZE, H SHIFT, V SIZE and V CENT controls will have no effect.
ADJ: For other microcomputers having analog RGB output.
When this switch is set to ADJ, adjust the display with the H SIZE, H SHIFT, V SIZE and V CENT controls.

Notes
- To adjust the horizontal frequencies of less than 40 kHz, set the AUTO SIZE switch to ADJ.
- To adjust the horizontal frequencies of 40 kHz or more, set the AUTO SIZE switch to either LOCK or ADJ.

6 **H SIZE (horizontal size) control**
Turn this control to adjust the horizontal size of the display.
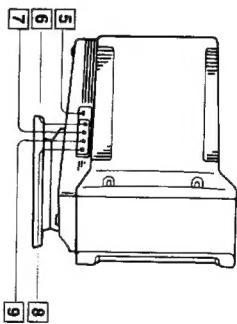
7 **H SHIFT (horizontal shift) control**
Turn this control to adjust the center of the display horizontally.

8 **V CENT (vertical center) control**
Turn this control to adjust the center of the display vertically.
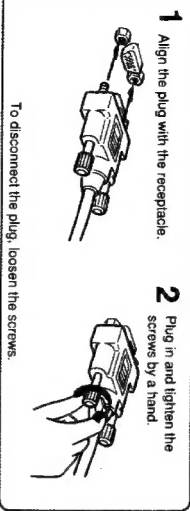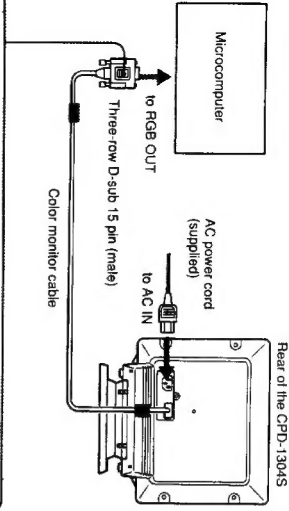
9 **V SIZE (vertical size) control**
Turn this control to adjust the vertical size of the display.

7

Connections

Connect the power cord and the color monitor cable.
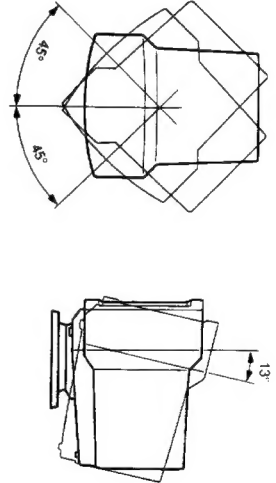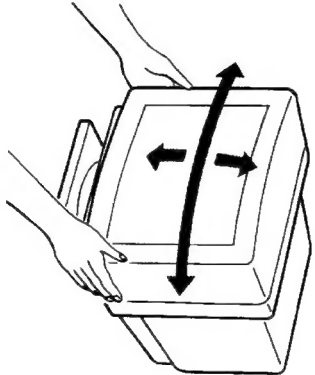Be sure to turn the power of the unit off before making the connection.

Microcomputer

to RGB OUT

Three-row D-sub 15 pin (male)

Color monitor cable

AC power cord (supplied)

to AC IN

Rear of the CPD-1304S

1 Align the plug with the receptacle.

2 Plug in and lighten the screws by a hand.

To disconnect the plug, loosen the screws.

RGB Input Pin Assignment

1	2	3	4	5	6	7	8	9
R	G	B	GND	FLG	GND	GND	GND	—

10	11	12	13	14	15
GND	GND	—	H SYNC	V SYNC	—

Use of the Tilt-Swivel

With the tilt-swivel, this unit can be adjusted to be viewed at your desired angle within 90° horizontally and 13° vertically.

45°

45°

13°

To turn the unit horizontally, hold it at its bottom with both hands as illustrated below.

Specifications

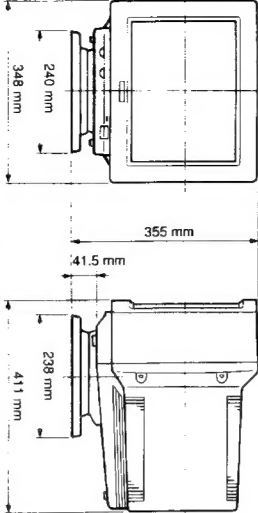|	
Picture tube	Super Fine Pitch Trinitron color tube 14-inch picture tube measured diagonally 90 degrees deflection Anti-glare dark screen Faceplate: non glare Conductive Silica Coating Phosphor P22 0.25 mm Aperture Grille Pitch
Viewable pixels	1024 × 768
Scanning frequency	Vertical sync signal frequency: 55 – 110 Hz Horizontal sync signal frequency: 28 – 57 kHz
Video input signal	Analog RGB positive 0.714 Vp-p/75Ω terminated Video band width: 60 MHz ±3 dB
Sync input	TTL level. Polarity free. Composite sync is acceptable at Pin # 13. Sync on green is acceptable.
Power requirements	100–120 V AC, Max. 1.8 A, 50–60 Hz
Dimensions	355(H) × 348(W) × 411(D) mm (14 × 13³/₄ × 16¹/₄ inches)

348 mm
240 mm
355 mm
41.5 mm
238 mm
411 mm

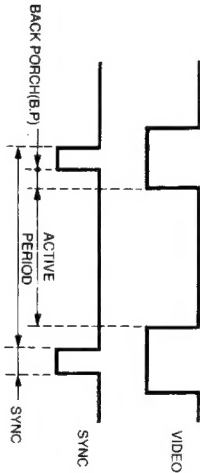|	
Weight	Approx. 13.1 kg (30 lb 14 oz) Including the tilt-swivel
Supplied accessory	AC power cord (1)

Design and specifications subject to change without notice.

Timing Chart

The following timing chart shows approximate values.
MONITOR ACCEPTABLE TIMING EXAMPLE

VIDEO
SYNC
BACK PORCH(B.P)
ACTIVE
PERIOD
SYNC

1 VGA

			1	2	3
FREQ.	H	(kHz)	31.47	31.47	31.47
	V	(Hz)	70.1	70.1	59.9
H	PERIOD (µS)		31.78	↓	↓
	SYNC		3.81		
	B.P		1.91		
	ACTIVE		25.42		
V	PERIOD (H)		449	449	525
	SYNC		2	2	2
	B.P		34	59	32
	ACTIVE		400	350	480
SYNC POLARITY	H		NEGA	POSI	NEGA
	V		POSI	NEGA	NEGA
CLOCK FREQ.		(MHz)	25.175	25.175	25.175

Timing Chart

2 1024 × 768 interlace (fh = 35.52 kHz/fv = 87 Hz)

FREQ.	H	(kHz)	35.52
	V	(Hz)	87.0
H	PERIOD (µS)		28.15
	SYNC		3.92
	B.P		1.25
	ACTIVE		22.81
V	PERIOD (H)		408.5
	SYNC		4
	B.P		20/20.5
	ACTIVE		384
SYNC POLARITY	H		POSI
	V		POSI
CLOCK FREQ.	V	(MHz)	44.900

3 35 kHz
800 × 600

non-interlace (example)

FREQ.	H	(kHz)	35.16
	V	(Hz)	56.0
H	PERIOD (µS)		28.44
	SYNC		3.11
	B.P		2.67
	DISPLAY		22.22
V	PERIOD (H)		628
	SYNC		14
	B.P		7
	ACTIVE		600
CLOCK FREQ.		(MHz)	36.000

1, **2**: When the AUTO SIZE switch is in the LOCK position, picture size is automatically adjusted for the above listed video modes (**1**, **2**).

All sizing controls on the left side of the monitor are therefore ineffective.
To adjust sizing for other video modes, change the switch to ADJ and adjust the controls.
Polarity free with the timing **1**, **2** if the AUTO SIZE switch is not used.

4 48 kHz   non-interlace (example)
1024 × 768

FREQ.	H	(kHz)	48.780
	V	(Hz)	60.00
H	PERIOD (µS)		20.500
	SYNC		1.500
	B.P		2.000
	DISPLAY		16.000
V	PERIOD (H)		813
	SYNC		3
	B.P		39
	ACTIVE		768
CLOCK FREQ.		(MHz)	64.000

3, **4**: SYNC POLARITY FREE

5 57 kHz   non-interlace
1024 × 768

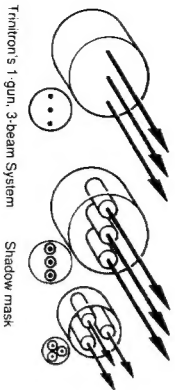| FREQ.	H	(kHz)	56.476
	V	(Hz)	70.069
H	PERIOD (µS)		17.707
	SYNC		1.813
	B.P		1.920
	ACTIVE		13.653
V	PERIOD (H)		806
	SYNC		6
	B.P		29
	ACTIVE		768
SYNC POLARITY	H		NEGA
	V		NEGA
CLOCK FREQ.		(MHz)	75.000

Appendix

Sony Trinitron System

Sony used its skilled research and development teams to create the first Trinitron TV, introduced 20 years ago. Some 40 million Trinitrons have been sold worldwide so far, and Sony won the Emmy Award for technical quality in 1977. Its Super Fine Pitch (the narrowest dot pitch in the industry for each CRT size class) provides images that are just as sharp and clear as prints, making it most suitable for computer graphics, not to mention TV broadcasts.

Features

Clear, crisp, and easy-to-read screen

Trinitron's black screen increases the contrast by 50 percent, and its 1-gun, 3-beam system with one large lens allows more precise color beam focusing. Thus colors are reproduced more distinctly. Higher contrast also recreates computer graphics and characters that are crisp, clear, and easy to read.
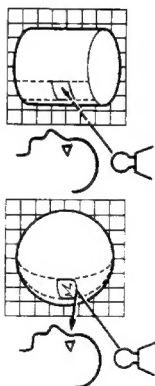
Trinitron's 1 gun, 3-beam System   Shadow mask

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Display with less glare and distortion

Only Trinitron incorporates a cylindrical screen with a completely straight, vertically flat surface.
The cylindrical screen delivers a clear undistorted picture, and also eliminates ambient light reflection, for long viewing without fatigue.
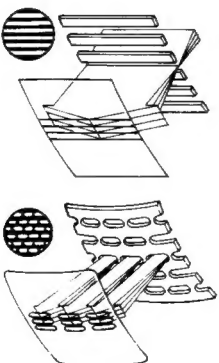
Trinitron's Flat Screen   Shadow mask

Brighter picture and more accurate colors

Sony's exclusive Aperture Grille with long and unbroken slits delivers more color and brightness to the screen.
The result is a brighter and more beautiful picture.

This Grille is stabilized with a damper wire. When viewing images with light backgrounds, this wire is sometimes visible as a fine line.

Trinitron's Aperture Grille System   Shadow mask

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